

1
SEQ ID NO:29 (gi 3080420)
SEQ ID NO:2
SEQ ID NO:4
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

MSGAVLVAIAAAVGNLLQGWDNATIAGAVLYIKKEENLESNPSVEGLIVAMSLLIGATLIT⁶⁰
MGGAVMVAIAASIGNLLQGWDNATIAGAVLYIKKEFNLQSEPLIEGLIVAMFLIGATVIT
MAGAVLVAIAASIGNLLQGWDNATIAGAVLYIKKEFNLSHSDPLIEGLIVAM-----
MKGAVLVAIAASIGNFLQGWDNATIAGANGYIKKDALGTT--MERLVVGMSLIGATVIT
MSGAAVLVAIAASIGNLLQGWDNATIAGAVLYIKKEFQLENNPTVEGLIVA-----
SEQ ID NO:16

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SEQ ID NO:29 (gi 3080420)
SEQ ID NO:2
SEQ ID NO:4
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

TCSggvadwlgrrpmlsslyfvgsllwspnvyyvllgrlldgf gvg1vvrlvp1y¹²⁰
TSpgradcvgrrpmlvasAVLyFvsglvmlwapivvillarlidgfgiglavtlvp1y
tcs gpiadwlgrrpmlsslyflgg1vmlwspnvyv1clarl1dgffgiglavtlvpvy
SEQ ID NO:16

121
SEQ ID NO:29 (gi 3080420)
isetapp-eirGLLNNTLPQFTG-SGGMFELSYCMVEGMSLMPSPSWRLMLGVLFIPSLVFF
isetaphrxxswGXNTLPQFIGVXGGMFELSYCMVEGMSLMPKPDWRLMLGVLSIPLXXF
-----S---LI----GAT-----I---
isetaps-eirGSLNNTLPQFSG-SGGMFELSYCMVEGMSLSPAPSWRMLGVLSIPLXXF
-----S---LI----GAT-----I---
SEQ ID NO:2
SEQ ID NO:4
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

FIG. 1A

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361 420
SEQ ID NO:29 (gi 3080420) LVGEGEDYPSD----HGDDSEDDLHSPLLISRQTTSM--KDMMPHTAH--GTLSFRHGSQV
SEQ ID NO:2 LHRDUDEEYASD---GAGGDYEDNLHSPLLISRQATGAEGKDIVHHGHGRGSALSMRQSV--L
SEQ ID NO:4
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

421 480
SEQ ID NO:29 (gi 3080420) QGAQGEAGSMIGGGWQVAWKWTEREDESGQKEEGF-----PGSRRGSIIVSLPG
SEQ ID NO:2 LGEGGDGVSSTDIGGGWQLAWKWSEKEGENGRKEEGFKRVYLHQEGVPGSRRGSIIVSLPG
SEQ ID NO:4
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

481 540
SEQ ID NO:29 (gi 3080420) EG----EFVQAALVSQPALYSKDLIKEHT--IGPAMVHPSE-TTKGSIWHDILHDPGV
SEQ ID NO:2 GDGTGEA--DEVQASALVSQPALYSKDLIKEHT--IGPAMVHPSE-TTKGSIWHDILHDPGV
SEQ ID NO:4 GGDVLEGS-EFVHAAALVSQPALYSKDLIKEHT--IGPAMVHPSE-TTKGSIWHDILHDPGV
SEQ ID NO:6
SEQ ID NO:8
SEQ ID NO:10
SEQ ID NO:12
SEQ ID NO:14
SEQ ID NO:16

FIG. 1C

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			541	600
SEQ	ID NO: 29	(gi 3080420)	KRALVVGVGLQILQQFSGINGVLYYTPQILEQAGVGILLSPNMGISSSASLLISALTTFL	
SEQ	ID NO: 2		RRALLVVGVGIQILQQFAGINGVLYYTPQILEQAGVAVILSKEGLSSASASILISSLT'LL	
SEQ	ID NO: 4			
SEQ	ID NO: 6			
SEQ	ID NO: 8			
SEQ	ID NO: 10		KHALVVGVGIQILQQFSGINGVLYYTPQILEEAGVEVLLSDIGGSESFLISAFYT'FL	
SEQ	ID NO: 12		KHALIVGVGMQILQQFAGINGVLYYTPQILEQAGVGYLLSLGLGSTSSSEFLISAVT'LL	
SEQ	ID NO: 14		RRALFVVGVGIQMLQQFAGINGVLYYTPQILEQAGVAVILSNGLSSASASILISSLT'LL	
SEQ	ID NO: 16		KHALFVVGVGLQILQQFAGINGVLYYTPQILEQAGVGILLSPNMGISSSASLLISALTTLL	

SEQ	ID	NO: 29	(gi 3080420)	MLPAIAVAMRILMDLSGRRTLLLTIPIILLIASLVLVISNLVHMNSIVHAVLSTVSVVIYF
SEQ	ID	NO: 2		MLPCIGFAMLMDLSGRFELLGTIPILLIASLVLVISNLIDLTGLAHALLSTISIVIYF
SEQ	ID	NO: 4		-----
SEQ	ID	NO: 6		-----
SEQ	ID	NO: 8		-----
SEQ	ID	NO: 10		-----
SEQ	ID	NO: 12		-----
SEQ	ID	NO: 14		-----
SEQ	ID	NO: 16		-----

			7'20
SEQ	ID NO: 29	(gi_3080420)	CCFVMGFGPAPNLICSEEIFPTRVGICIAICALTFWICDIIIVTYSLPVILKSIGLAGVFG
SEQ	ID NO: 2		CCFVMGFGPPIPNIKCAEEIFPTRVRGLCIAICAFAETFWIGDIIIVTYSLPVMINAIGLAGVFS
SEQ	ID NO: 4		-----
SEQ	ID NO: 6		CCFVMGFGPPIPNIKCAEEIFPTRVGICIAICALTFWICDIIIVTYSLPVILNAIGLAGVFG
SEQ	ID NO: 8		CCFVMGFGPPIPNIKCAEEIFPTRVRGLCIAICALVFWIGDIIIVTYSLPVILGSLLGGVFA
SEQ	ID NO: 10		CCFVMGFGPPIPNIKCAEEIFPTRVRGLCIAICALTFWICDIIIVTYSLPVILNSVGLAGVFG
SEQ	ID NO: 12		-----
SEQ	ID NO: 14		CCFVMGFGPPIPNIKCAEEIFPTRVRGVICIAICALTFWICDIIIVTYSLPVILNAIGLAGVFG
SEQ	ID NO: 16		CCFVMGFGPPIPNIKCAEEIFPSTSVRGICIAICALTFWIGDIIIVTYSLPVILNAIGLAGVFG

FIG. 1D

721 767

SEQ ID NO:29	(gi 3080420)	MYAIVVCCISWWFFVIKVPETKGMPLLEVITEFFSVGARQAEAA--KNE
SEQ ID NO:2		IYAVVCLISFVFVFLKVPETKGMPLLEVITEFFAVGAKQAAA----KA
SEQ ID NO:4		-----
SEQ ID NO:6		-----
SEQ ID NO:8		IYAVVCLIAFLFVEMKVPETKGMPLLEVITEFFSVGAKQ-AKE---D
SEQ ID NO:10		IYAVVCFISWIFVFLKVPETKGMPLLEVISEFFSVGAKQASA--KNE
SEQ ID NO:12		IYAVVCFIAWVFFVFLKVPETKGMPLLEVIEFFSVGAKQFDDA--KHN
SEQ ID NO:14		-----
SEQ ID NO:16		IYAVVCCIAFVVFLKVPETKGMPLLEVITEFFAVGAKQ-AQA--TIA
		IYAIVCVLAFVVFVYMKVPETKGMPLLEVITEFFSVGAKQ-GKE--ATD

FIG. 1E

FIG. 2A

SEQ ID NO:30 SEQ ID NO:18 SEQ ID NO:20 SEQ ID NO:22 SEQ ID NO:24 SEQ ID NO:26 SEQ ID NO:28	MSEG-----TNIKAMSDDPPPTTAKVIA--DF-DPLKKPPKRN-- - KFAFACAT SR-----AQSEPSTMASA--PL--PAAIEPGKKGNVKFAFACXTI M-----ASD--ELAK--AVEPRKKKGKGNVKYASICAI MTEG-----MASA--AL--PEAVAPKKKGKGNVRFAFACAI MTEG-----KLVEAAEAH-----KTLQ--DF-DPPKRR-KRN---KYAFACAM MKMS-----MDRA--AL--PAAVEPKKKGNVRFAFACAI MKMS-----PERKGAEDKEEGSRMASA--ALPEPGAVHPRNKGKFNKYAFTCAI
1	60
SEQ ID NO:30 SEQ ID NO:18 SEQ ID NO:20 SEQ ID NO:22 SEQ ID NO:24 SEQ ID NO:26 SEQ ID NO:28	LASMTSILLGY-----DIGVMMSGAIYLKEDWHISDTQIGVLVG LASMTSILLGY-----DIGVMMSGASLYIKKDLKISDVKLEILMG LASMASVILGY-----DIGVMMSGAAAMYIKKDLNINITDVQLEILIG LASMTSILLGY-----DIGVMMSGASLYIKKDDENISDGKVEVIMG LASMTSILLGY-----DIGVMMSGAAIYIKRDLIKVSDEQIEILLG LASMTSILLGY-----DIGVMMSGASLYIQKDLKINDTQLEVIMG CASMATIVLGY-----DVGVMSGASLYIKRDLQITDVQLEIMMG
61	120
SEQ ID NO:30 SEQ ID NO:18 SEQ ID NO:20 SEQ ID NO:22 SEQ ID NO:24 SEQ ID NO:26 SEQ ID NO:28	ILNIVYCLFGSEAAGRSTS DWIGRRYTIVLAGAIFFGALLMGFA TNYAFLMVG RFTV T GIV ILNVYSLIGSXAAAGRSTS DWIGRRXTIVFAAVIFFAGAXLMGF AVNYWMLM GFRF VAGIGV ILSLYSLFGSEAGARTSDRIGRRLTVVFAAVIFFVGSSL LMGF AVNYGMILMAGRFVAGIGV ILNLYSLIGSEAAGRSTS DWIGRRYTIVEFAAVIFFAGXFLMGFAVN YAMILM GFRF VAGIGV IINLYSLIGSCLAGRSTS DWIGPRYTIVFAGTIEFVGALLMGFS PNYSELMEGRF VAGIGI IINNVYSLIGSEAAGRSTS DWIGRRFTIVFAAVIFFAGALIMGE SVNYAMIMM GFRF VAGIGV ILSVYALIGSFLGARTSDWVGRRVTVVFAAAIFNNGSLLM GFAVN YAMIMM GFRF VTT GIV
121	180
SEQ ID NO:30 SEQ ID NO:18 SEQ ID NO:20 SEQ ID NO:22 SEQ ID NO:24 SEQ ID NO:26 SEQ ID NO:28	

FIG. 2B

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181 SEQ ID NO: 30 SEQ ID NO: 18 SEQ ID NO: 20 SEQ ID NO: 22 SEQ ID NO: 24 SEQ ID NO: 26 SEQ ID NO: 28	240 GYALMIAPVYTAEVSPASSRGFLTSFPEVFINAGILLGYISNLAFFSLPLTHLSWRFMLGI GYALMIATVYTAEVSPXSARGFLTSFPEVF----- GYGGMIAPVYTAEISPAASRGFLTTFPEVFINIGILLGYLSNFASFARLPLIHLGWRVMLAI GYALMIAPVYTAEVSPASARGFLTSFPEVFINFGILLGYVSNYAFSRLPLNLGWRIMLGI GYALMIAPVYTAEVSPASSRGFLTSFPEVFINGGILLGYTISNYAFSKILTLKVGWRMMLGV GYALMIAPVNTGEVSAPSGVLTTSFPEVFINFGILLGYVSNFAFARLSSLRLGWWRIMLGI GYAIMVAPVYTPEVSAPSGFLTSFTEVFINVGILLGYVSNYAFARLPLHLSWRVMLGI	241 300 GAIPSIFLAIGVVLAMPESPRWLVMQGRGLGDAKVKVNRIIDSPEEAQLRLSEIKQTAGIPA ----- GAVPSGLLALLVFCMPESPRWLVLKGRLADARAVI L EKTSA T PEEAERL A DIKAAGA I PK GAAPSVLALLMVLMGPESPRWLVMKGR L ADAKV V LEKTSD T AA E ERL A DIKAAGA I PE GAIPSVLITVGVLAMPESPRWLVMRGR L GEARKVKLN K TSD S KEEA Q LR L AE I KQAAGA I PE GAVPSVLLAFMVVLGMPESPRWLVMKGR L ADAKV V IAK T SD T PEEA A ERIADI K TAAG I PL GAVPSALLALMVFGMPESPRWLVMKGR L ADARAVI A IAK T SD T PEEA V ERLD Q IKAAAG I PR	301 360 ECDEDIYKVEKTKIKSGNA-VWKELFFNPPTPAVRRAVIAGIGIHFFQOASGIDAVVLYSP ----- GLDGDVVTPGKEQGGGELQVWKKLILSPTPAVRRIILSAVGLHFFQQASGSDSVVQYSA ELDGDVVTPK-RGSGNEKRVWKKELILSPTPAMRRILLSGIGIHFFQHALGIHSVVFYSP SCNDDDVVQVNQQS--NGEG-VWKELFLYPTPAIRHIVIAALGIHFFQQASGVDAVVLYSP GLDGDVVPPPKNKGSSEEKRVLKDLILSPTIAMRHILLIAGIGIHFFQOSSGIDAVVLYSP ELDGDVVVMP-KTKGGQEKGQVWKKELIFSPTPAMRRILLAALGIHFFQQATGSDSVVLYSP
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FIG. 2C

SEQ ID NO: 30
SEQ ID NO: 18
SEQ ID NO: 20
SEQ ID NO: 22
SEQ ID NO: 24
SEQ ID NO: 26
SEQ ID NO: 28

SEQ ID NO: 30
SEQ ID NO: 18
SEQ ID NO: 20
SEQ ID NO: 22
SEQ ID NO: 24
SEQ ID NO: 26
SEQ ID NO: 28

361 RIEQ SAGITNARKQLIATVAVGVVVKTLFILVATFQLDKYGRRPLLLTSVGGMIIAAILTLA

RLEKSAGITDDNKLLGVTCAVGVTKTFILVATELLDAGRRLLLISTGGMIVSLLICIG
LVEFKSPGLTNDKHFLGTTWPFEGVTKRLLFILLATEFFIDGVGRPPLLGSSTGGIILSSLIGL
RIFEKAGITNDTHKLIAATVAVGFVKTVELLAATFTLDRVRPRLSSVGGMVLSSLLTIA
LVEFKSAGITGDSRSLRGTTVAVGATNTVEILLVATEFLDRIRRPLVLTSGGMLVSIVGLA
RVFQ SAGITGDNHILLGATCAMGVMKTLFILVATFQLDRVGRPLLLTSTAGMLACLIGLG
421 MSLTVID-HSHHKITWAIALCITMVCAPPVASFSIGLGPITWVYSSEVEPLRLRAQGTSMG

SGLTVAGHHHPDTKVAVAVALCIASTLSYIAFFSIGLGPITGVYTSEIFPLQVRAFGFAVG
AGLTVVQHPDAKIPWAIGLSSIASTLAYVAFFSIGLGPITWVYSSEIFPLQVRAFGCSIG
ISLTVID-HSERKLMWAVGSSIAVMVAYVATESIGAGGPITWVYSSEIFPLRLRAQGAAG
TGLTVISRHPDEKITWAIVLCIFCIMAYVAFFSIGLGPITWVYSSEIFPLHVRALGCSIG
TGLTVVGRHPDAKVPWAIGLCIVSILAYVSEFFSIGLGPLTSVYTSEVEPLRVRAFGAIG
481 VAVNRVVSGLVISIFFPLSHKITTGGAAFFLFGGIAIIAWEFFFLPETGRRTIENMHEL

VASNRVTSAVISMTFSLSKAITTIGGSFFLYSGIAAVAWVFFETCLPETRGRTLLEMGKL
VAANRVTSGVVISMTFSLSKAITTIGGSFFLYSGIAALAWVFFYTYLPETRGRTLLEMMSKL
VAVNRTTSAVVSMTFSLTRAITTIGGAEFLYCGIATVGWIFFYTVLPETRGKTLEDMEGS
VAVNRLTSGVVISMTFSLSKAMTIGGAEFLFAGIASFAWVFFFAYLPETRGRTLEDMSSL
TSCNRVTSAAVSMSFSLSKAITTIGGSFFLYAGIAAGWIEFFETIPETRGLPSEEIGKI.

FIG. 2D

541 FEDFRWRESFPGNKSNNDENSTRKQSNGNDKSQVQLGETTTSTTVTNDNH
SEQ ID NO: 30
SEQ ID NO: 18
SEQ ID NO: 20
SEQ ID NO: 22
SEQ ID NO: 24
SEQ ID NO: 26
SEQ ID NO: 28

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FGM-----PDTGMAEEAEDA-AAKEKVVELPSSK-----
FGD-----TAPASESDEPAKEK---KKVEMAATN-----
FGTFRSKSN--ASKAVENENG----QVAQVQLG----TNVQT
FGN-----TATHKQGAAEADDDAGEKKVEMAATN-----
FGM-----TDTAVEAQDTAT-KDKAKVGEM---N-----